

## CS 150 Lab 9 End of File & .get()

The purpose of today's lab is for you to get some hands-on experience with how to read data from a file until the end of file is reached and how to read single characters from the file.

- **Be sure to answer the given questions before you start**
- Be sure your output looks exactly like the specified output
- Be sure to submit your solution to CS150-02 Drop when you are done (By Friday, Oct 29, 5pm)
- Show the instructor or TA your solution before submitting it

### Lab 9.1 Reading data from a file, a character at a time

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "09Lab\_1\_XXXXXXXX", replacing the XXXXXXXX with your PUNetID. Write a program that will open a file called **letters.txt** and read **single characters** from that file counting how many lower case vowels (a, e, i, o, u), blank spaces, and newlines the file contains. **Hint:** This is a great chance to use a switch statement!

Copy the file **letters.txt** from the Public folder on Turing to your project. The file should be placed in the folder 09Lab\_1\_XXXXXXXX\09Lab\_1\_XXXXXXXX. This folder should also contain **main.cpp**. Be sure to add this file to Visual Studio once you have copied the file to the correct location by right clicking on **Resource Files** and choosing **Add Existing**.

**Hint:** Solve this in stages, first just count newlines (and test), then also count spaces (and test) .....

Sample output

```
 /-----/  
 / Text Counter /  
 /-----/
```

**Vowels Spaces Newlines**

```
-----  
    20    12    4
```

1. List each variable declaration necessary to store the data and information in your program. The variable name and type must be enough information to describe the information the variable holds.

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2. For each loop used in your program, discuss what will happen in the loop and what data and conditions will be used by the program to stop the loop.

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## Challenge

You do not need to submit this project!

You are to write a program that will read, character by character, each digit of Pi and count how many times each digit is found. A test file (named **Pi.txt**) containing the first 100,000 digits of Pi is in the Public folder on Turing. This file contains digits, newlines, and spaces.

**Challenge 2:** Further, you need to determine how many times the four digits from your PUNetID appear, in order and consecutively, in the file. Make sure you handle PUNetIDs with leading zeros! You can generate your own test file using this web page: <http://www.eveandersson.com/pi/digits/>

```
 /-----/  
 / Digit Counter /  
 /-----/
```

**What are your four PUNet digits? 8620**

```
0: 9999  
1: 10138  
2: 9908  
3: 10026  
4: 9970  
5: 10027  
6: 10027  
7: 10025  
8: 9978  
9: 9902
```

**8620 is found 9 times.**

1. List each variable declaration necessary to store the data and information in your program. The variable name and type must be enough information to describe the information the variable holds.

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2. For each loop used in your program, discuss what will happen in the loop and what data and conditions will be used by the program to stop the loop.

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